

## Flooding on Kaua'i, April 15, 2018

Intense rainfall during the weekend of April 14–15, 2018 resulted in severe flooding, landslides, property damage, and road closures isolating several communities on the Island of Kaua'i. The U.S. Geological Survey (USGS) operates twelve real-time streamflow-gaging stations and ten peak-streamflow gaging stations on Kaua'i. All of the gages visited as of April 24, recorded peaks during the event, or high water marks were surveyed for peak-discharge determination. Three of the real-time streamflow-gaging stations were damaged during the flood: East Branch of North Fork Wailua River near Līhu'e, Hanalei River near Hanalei, and Wainiha River near Hanalei. These sites were repaired within 3–4 days of the flood peaks.

Several rain gages in north Kaua'i indicate that rainfall totals were higher near the north coast than at the higher elevations farther inland where average rainfall generally is greater. The National Weather Service (NWS) reports that a rain gage near sea level in Waipā measured 49.69 inches of rainfall during the 24 hours preceding 12:45 pm on April 15. The NWS rain gage at Hanalei (26 feet above mean sea level) recorded 28.15 inches of rain in the 24 hours preceding 2:00 am on April 15 when it stopped recording, which is a rainfall rate with a recurrence interval of 500 years (written communication, Kevin Kodama, NWS Honolulu Forecast Office). The USGS Mt. Wai'ale'ale rain gage at 5,150 feet above mean sea level measured 8.91 inches of rain during the same 24-hour period. The [recurrence intervals of streamflow peaks](#) during the flood ranged from about 2 to 100 years. The peak-streamflow gage on Hanalei River at the Highway 56 Bridge measured the highest peak (14.74 feet) since the gage was installed in 1963. The previous record was 13.95 feet in 2009.

### Provisional streamflow peaks on April 15, 2018, at USGS gaging stations on Kaua'i, Hawai'i.

[Station number includes the online link to all available data for the station in the USGS National Water Information System (NWIS); NWIS database limitations preclude the use of Hawaiian diacritical marks in USGS station names, which are modified slightly to avoid abbreviations in the table; TBD, to be determined; NR, not reported; annual flood recurrence intervals are at-station estimates available from <https://pubs.usgs.gov/sir/2010/5035/>, or are otherwise regression-equation estimates from <http://streamstats.usgs.gov/ss/>; years of historic record are not necessarily continuous years, and some peaks have reported stages but no discharges, and some discharges have no reported stage. The data for April 2018 are preliminary or provisional and are subject to revision. They are being provided to meet the need for timely best science. The data have not received final approval by the U.S. Geological Survey (USGS) and are provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the data.]

Station number	Station name	April 15, 2018 peak				Historic peak		
		Time, in Hawaiian Standard Time	Stage, in feet	Discharge, in cubic feet per second	Recurrence interval, in years	Discharge, in cubic feet per second	Date	Years of historic record
<a href="#">16019000</a>	Waialae Stream at altitude 3,820 feet near Waimea	05:00	6.14	2,410	2–5	4,530	1/16/1921	74
<a href="#">16031000</a>	Waimea River near Waimea	06:55	11.56	7,030	Less than 2	37,100	2/7/1949	58
<a href="#">16036000</a>	Makaweli River near Waimea	03:00	14.09	12,500	5	26,000	1/31/1975	73
<a href="#">16049000</a>	Hanapepe River below Manuahi Stream near Eleele	04:40	10.29	15,100	10	39,000	4/15/1963	93
<a href="#">16060000</a>	South Fork Wailua River near Lihue	17:25	16.63	13,000	2	68,800	4/15/1963	103
<a href="#">16068000</a>	East Branch of North Fork Wailua River near Lihue	14:10	11.49	11,800	50–100	18,400	11/12/1955	102
<a href="#">16071500</a>	Left Branch Opaekaa Stream near Kapaa	05:40	5.63	584	10	1,060	12/14/1991	57
<a href="#">16093400</a>	Aliomanu Stream near Anahola	05:00 <sup>1</sup>	9.09	TBD	TBD	1,090	2/13/2014	6
<a href="#">16097500</a>	Halaulani Stream at altitude 400 feet near Kilauea	05:10	9.93	4,040	50–100	4,140	2/13/1994	60
<a href="#">16097900</a>	Puukumu Stream near Kilauea	05:00 <sup>1</sup>	14.44	1,250	10–25	1,430	4/7/1971	44
<a href="#">16103000</a>	Hanalei River near Hanalei	06:00 <sup>1</sup>	18.50	32,700 <sup>1</sup>	10–25	41,600	11/3/1995	56
<a href="#">16104200</a>	Hanalei River at Highway 56 Bridge near Hanalei	08:00 <sup>1</sup>	14.74	NR	NR	NR	NR	51
<a href="#">16108000</a>	Wainiha River near Hanalei	05:00 <sup>1</sup>	16.70	25,000 <sup>1</sup>	50–100	20,200	4/19/1974	64

<sup>1</sup>Estimated.